

Name: \_\_\_\_\_  
A2CC: Solving Rational Inequalities

Date: \_\_\_\_\_

Do Now:

1. Solve by completing the square:  $3x^2 + 20x + 36 = 4$
2. Solve and express your answer in interval notation:  $x^2 - 4x \leq 32$

For each inequality below, express its solution set 3 ways:

- (a) As a number line.
- (b) Using set-builder notation.
- (c) Using interval notation.

1.  $\frac{x+4}{2-x} \geq 0$

12.  $\frac{3x+1}{x-1} \geq 2$

2.  $\frac{x}{x+2} < 0$

13.  $\frac{4}{x+2} > 2$

3.  $\frac{x+5}{x-1} > 0$

14.  $\frac{1}{4} < \frac{7}{7-x}$

4.  $\frac{6}{x-3} > 0$

15.  $\frac{x+2}{x-6} \geq -3$

5.  $\frac{(x+2)(x-1)}{4-x} \geq 0$

16.  $\frac{x-8}{x+6} \leq 2$

6.  $\frac{(6-x)(3+x)}{x+1} \leq 0$

17.  $\frac{2}{x(x-1)} < 1 + \frac{2}{x-1}$

7.  $\frac{x^2 - 5x + 4}{x} > 0$

18.  $4 + \frac{1}{x} \geq \frac{10}{2x}$

8.  $\frac{x^2 - 16}{(x-1)^2} < 0$

19.  $x - \frac{10}{x-1} \geq 4$

9.  $\frac{3x+1}{x+4} \geq 1$

20.  $\frac{(x+1)^2(x+2)}{x-1} \geq 0$

10.  $\frac{x-8}{x} + x - 3 \leq 0$